

MAMMALOGY.—A new pine mouse (*Pitymys pinetorum carbonarius*) from the southern Appalachian Mountains.<sup>1</sup> CHARLES O. HANDLEY, JR., U. S. National Museum. (Communicated by H. W. Setzer.)

As long ago as 1900 Vernon Bailey noticed that the pine mouse (*Pitymys pinetorum*) of the Cumberland Plateau region of the southeastern United States differed in important respects from other populations farther to the south and southwest. In his *Revision of American voles of the genus Microtus*, North American Fauna no. 17: 65, 1900, he remarked that: "A series of 31 specimens in the Merriam collection from Eubank, Ky., average darker and richer in coloration than the type series [referring to *P. p. auricularis*], and have equally large ears." Lacking material from other Cumberland localities, he called the Eubank mice *auricularis*. Later, Hooper and Cady (Journ. Mamm. 22: 325, 1941) discovered the same characters in specimens from Cleveland, Virginia, on the eastern fringe of the plateau region, but referred their specimens to *P. p. scalopsoides*. Sufficient material is now available to show that the pine mouse of the Cumberland Plateau is quite distinct from surrounding populations. With regard for its habitation of a region particularly noted for coal, I have named it:

***Pitymys pinetorum carbonarius*, n. subsp.**

*Type*.—Old adult female in slightly worn winter pelage; skin and skull; U. S. N. M. no. 191204; collected February 14, 1888, at Eubank, Pulaski County, Ky., by John B. Lewis; original number 76.

*Distribution*.—The Austral and Transition Life Zones of southwestern Virginia, northeastern Tennessee, eastern Kentucky, extreme southeastern Ohio, and probably southern West Virginia (east to Russell County, Va., and Carter County, Tenn.; south to Jefferson and Campbell Counties, Tenn.; west to Pulaski County, Ky.; and north to Lawrence County, Ohio).

*Description*.—Type (capitalized color terms from Ridgway, 1912, *Color standards and color nomenclature*): Dorsum between Sanford's Brown and Argus Brown, overlaid with black; flanks, shoulders, cheeks, and sides of snout between Amber Brown and Tawny; belly and legs silvery

gray, washed with buff; upper surfaces of feet Hay's Brown with a silvery cast; tail brownish above, darker than feet, whitish below, with no clear line of demarcation between the colors. Size large; ears not completely concealed by fur. Skull of light construction, somewhat angular, not noticeably convex in dorsal profile; post-orbital protuberance of squamosal slightly developed; zygomatic arches light and parallel to one another; rostrum long and narrow; braincase long and wide; incisive foramina long and frequently narrowed posteriorly; and anterior margin of mesopterygoid fossa variable in outline, either U-shaped or V-shaped.

*Measurements* (in millimeters; average followed by extremes).—Ten adults (both sexes; including type) from Eubank, Ky.: Skin—total length, 125 (118–139); tail, 23 (19–26); hind foot, (no measurements available). Skull—greatest length, 25.6 (25.1–26.6); zygomatic breadth, 15.5 (14.9–16.6); least-interorbital width, 4.4 (4.1–4.6); nasal length (along mid-line), 7.8 (7.7–8.0); maxillary molar series (alveolar length), 6.4 (6.2–6.7); mastoidal breadth, 13.0 (12.3–13.6); braincase length (dorsal midpoint of foramen magnum to postorbital process of squamosal), 13.3 (13.0–13.6).

*Comparisons*.—This race is characterized in all pelages by dark and bright coloration of the dorsum, a consequence of the combination of black overlay and dark hue of the subapical band. It is the darkest known American population of *Pitymys*. Cranially it does not appear to be well differentiated; observed variations from other races are only average and are of small magnitude. With respect to the cranium, its closest relatives seem to be *P. p. auricularis* and *P. p. scalopsoides*. In many ways it is intermediate between these two forms. Resemblances to *P. p. pinetorum* are fewer. Geographically remote *P. p. nemoralis* and *P. parvulus* need not be considered in this discussion.

From *scalopsoides* the race *carbonarius* may be distinguished by much darker, brighter coloration of the dorsum, a greater amount of black on the tips of the dorsal guard hairs, less angular skull, less well developed postorbital protuberance of the squamosal, lighter zygomatic, longer rostrum, wider braincase, longer incisive foramina

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with a greater tendency toward posterior constriction.

The subspecies *auricularis* is nearly as dark as *carbonarius*, but the latter is brighter and has a more angular skull with a less convex dorsal profile, lighter and more parallel zygomatica, longer and narrower rostrum, wider braincase, incisive foramina more frequently constricted posteriorly, and the anterior margin of the mesopterygoid fossa less constantly U-shaped.

In brightness, but not in darkness, *carbonarius* is approached by *pinetorum*. However, *carbonarius* has more black on the dorsal guard hairs, and has the subapical band of a darker, more intense color. Further, it is larger in all dimensions, and has the skull more angular and less convex in dorsal profile, the rostrum longer and narrower, the braincase longer and wider, the incisive foramina longer and more frequently constricted posteriorly, the anterior margin of the mesopterygoid fossa not so consistently V-shaped, and the auditory bullae more inflated and more pointed anteriorly.

*Remarks*.—Probably the characters of *carbonarius* are best developed in the Cumberland Mountains and adjacent plateau. In outlining the geographic range of this race, two areas have given particular difficulty: The Ohio Valley in the longitude of Ohio and the northeastern portion of the Tennessee River watershed. These are areas where the characters of several races of *Pitymys pinetorum* merge.

Bascom, Ind., is the easternmost locality along the Ohio River from which typical *auricularis* has been seen. Specimens from Brookville, Ind., are intermediate and nearer *scalopsoides*, while ones from Ripley, Ohio, are intermediate and nearer *auricularis*. Farther upstream, at Rome and Smokey Creek, Adams County, Ohio, material is again intermediate, but nearer *scalopsoides*. Still farther eastward, where the Ohio River swings nearest to the range of *carbonarius*, at Lawrence County, Ohio, the darkest Ohio *Pitymys* are to be found. These are like *auricularis*, but in view of the character of the specimens from localities down stream, nearer the center of the range of *auricularis*, I tentatively consider the scanty Lawrence County material to be intergrades between *scalopsoides* and *carbonarius*, but nearer the latter. The character of dark coloration may be traced farther north-eastward in the Ohio Valley to Belmont County, Ohio. Bole and Moulthrop (Sci. Publ. Cleveland

Mus. Nat. Hist. 5: 161. 1942) identified specimens from Cat Run in this county as *pinetorum*. I have examined material from Cat Run and find it only slightly darker than typical *scalopsoides* from southeastern New York. It can be referred without hesitation to *scalopsoides*.

In the Tennessee Valley, specimens from Cleveland, Va., are intermediate between *scalopsoides* and *carbonarius*, but nearer the latter. A single individual from Watauga Valley, Tenn., is referred to *carbonarius*, although it is paler than that race and shows intergradation toward *pinetorum* or *scalopsoides*. A series from Marshall, N. C., is somewhat darker than typical *pinetorum*, showing the influence of either *carbonarius* or *auricularis*, both of which are darker than *pinetorum*.

*Specimens examined*.—Specimens are in the U. S. National Museum or the U. S. National Museum, Biological Surveys collection, except as indicated by the following abbreviations: CMNH—Cleveland Museum of Natural History; CM—Charleston [S. C.] Museum; CU—Cornell University; MGFC—Mississippi Game and Fish Commission; UMMZ—University of Michigan Museum of Zoology. I am grateful to the authorities at these institutions for the loan of specimens.

*P. p. auricularis*.—INDIANA: Bascom, 5; Worthington, 1. KENTUCKY: Canmer, 2; Monticello, 1. MISSISSIPPI: Copiah County, 2 (MGFC); Jones County, 1 (MGFC); Lincoln County, 2 (MGFC); Rankin County, 1 (MGFC); Washington, 4. NORTH CAROLINA: Cherokee County, 1 (UMMZ). OHIO: Ripley, 4 (CMNH). TENNESSEE: La Follette, 1.

*P. p. carbonarius*.—KENTUCKY: Eubank, 31; Quicksand, 1 (CU). OHIO: Hanging Rock, 1 (UMMZ); Symes Creek, Lawrence County, 1 (CMNH). TENNESSEE: High Cliff, 2; Jefferson County, 2 (CMNH); Watauga Valley, 1. VIRGINIA: Cleveland, 2 (UMMZ); Hurricane, Wise County, 6.

*P. p. pinetorum*.—NORTH CAROLINA: Bent Creek Experiment Station, Pisgah National Forest, 1; Madison County, 1 (CM); Marshall, 9 (CMNH). SOUTH CAROLINA: Abbeville, 1 (CM); Charleston, 5 (CM); Clemson College, 3 (CM); Frogmore, 1; Georgetown, 1 (CM); Summerville, 1 (CM).

*P. p. scalopsoides*.—INDIANA: Brookville, 3. NEW YORK: Suffolk County, 3; Ulster County, 7. OHIO: Cat Run, Belmont County, 15 (CMNH); Rome, Adams County, 7 (CMNH); Smokey Creek, Adams County, 1 (CMNH). VIRGINIA: Blacksburg, 2. WEST VIRGINIA: Gilboa, 2; Raymond City, 1; White Sulphur Springs, 11.